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10/562,630	12/23/2005	Kyouhiro Yoshida	20057-002US1 PCT-2004-008	8597
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EXAMINER				
CHEN, XIAOLIANG				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/562,630

**Applicant(s)**

YOSHIDA, KYOUIHIRO

**Examiner**

XIAOLIANG CHEN

**Art Unit**

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Amendment***

1. Acknowledgement is made of Amendment filed 06-19-08.
2. Claims 1, 5 and 6 are amended.

### ***Response to Arguments***

3. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al. (US20040208211) in view of Uchida (US20020109074) and Angulas et al. (US5435732).

**Re claim 1**, Maruyama et al. clearly show and disclose

A communication module comprising:

a semiconductor member (7, fig. 1B);

a printed circuit board (3, fig. 1B) on which said semiconductor member is mounted and to which said semiconductor member is electrically connected (fig. 1B);

a stem (1, fig. 1C) through which said board is inserted and to which said board is fixed,

a cap (11, fig. 1C) so disposed as to cover said semiconductor member.

Maruyama et al. does not disclose

1) the printed circuit board being a flexible printed circuit board, wherein the board comprises polyimide resin,

2) the board is fixed to the stem with a fixing material having a melting point in a range of 300 to 350°C;

Uchida teaches a device wherein

1) the printed circuit board being a flexible printed circuit board (a flexible board [0336]), wherein the board comprises polyimide resin (polyimide resin [0120]),

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flexible printed circuit board as taught by Uchida in the electronic device of Maruyama et al., for easier mounting the printed circuit board (For example, it is also possible to bend the substrate itself 90 degrees and mount it. Uchida, paragraph [0337]).

Angulas et al. teaches a device wherein

2) the board is fixed to the stem with a fixing material (solder [col. 6, line 56]) having a melting point in a range of 300 to 350°C (solder possesses a melting point within the range of from about 300 °C to about 350 °C [col. 6, line 56]);

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the solder with melting point in the certain range as taught by Angulas et al. in the electronic device of Maruyama et al., in order to fix the flexible board to the stem without damage.

**Re claim 2**, Maruyama et al. clearly show and disclose

The communication module according to Claim 1, wherein the semiconductor member is at least one of a light emitting element (6, fig. 1C), a light receiving element (8) and an integrated circuit (33, fig. 3C).

**Re claim 3**, Maruyama et al. clearly show and disclose

The communication module according to Claim 1,

Maruyama et al. dose not disclose wherein the flexible printed circuit board including a type of lines selected from among coplanar lines, micro-strip lines, and grounded coplanar lines.

Uchida teaches a device wherein

the flexible printed circuit board includes a type of lines selected from among coplanar lines, micro-strip lines, and grounded coplanar lines (micro strip line [0336]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the flexible printed circuit board with the micro strip line as taught by Uchida in the electronic device of Maruyama et al., in order to increase the mounting area and provide EMI-free optical wiring of the flexible printed circuit board. (Uchida, paragraph [0337])

**Re claim 4,** Maruyama et al. clearly show and disclose

The communication module according to Claim 1, wherein a plurality of different flexible printed circuit boards (different wiring boards and layers in fig. 2 also could use the flexible printed circuit boards as in claim 1) are fixed to the stem.

**Re claim 5,** Maruyama et al. clearly show and disclose

The communication module according to Claim 1, wherein an end of the flexible printed circuit board that protrudes from the stem has a connector (113, fig. 21B) that can connect to a subsequent-stage circuit board (400, fig. 22A).

**Re claim 6,** Maruyama et al. clearly show and disclose

The communication module according to Claim 1, wherein the flexible printed circuit board exhibits a bent-shape (the flexible substrate 400 is previously bent in the trapezoidal shape for use [0108]) when in a plane.

**Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 20010024461 US 20020074157 US 20030001250 US 7080445.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAOLIANG CHEN whose telephone number is (571)272-9079. The examiner can normally be reached on 7:00-5:00 (EST), Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800, ext 31. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dean A. Reichard/  
Supervisory Patent Examiner, Art Unit 2841

Xiaoliang Chen  
Examiner  
Art Unit 2841